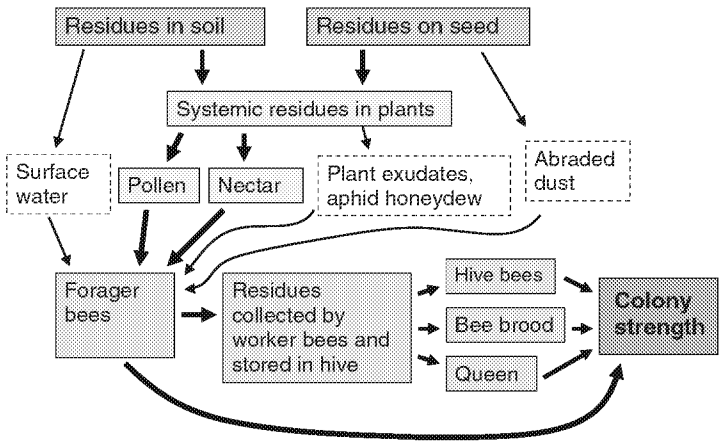

Plate 6.2 Depiction of stressor source, potential routes of exposure, receptors and attribute changes for a systemic pesticide applied to the soil or as a seed dressing.

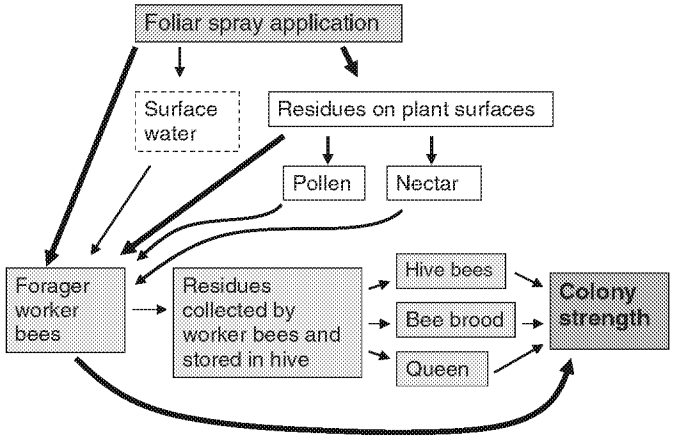

Plate 6.3 Depiction of stressor source, potential routes of exposure, receptors and attribute changes for a nonsystemic pesticide applied as a foliar spray.

Pesticide Risk Assessment for Pollinators, First Edition. Edited by David Fischer and Thomas Moriarty.

Plate 7.2 Leafcutter bee on blanket flower, photo by Mace Vaughan (Xerces Society for Invertebrate Conservation).

Plate 7.3 Micropipetting nectar samples, photo by Mike Beevers.

Plate 7.4 Hand collecting pollen by removing flower anthers, photo by Mike Beevers.

Plate 7.5 Honey bee semi-field study with *Phacelia*, photo provided by BASF SE.

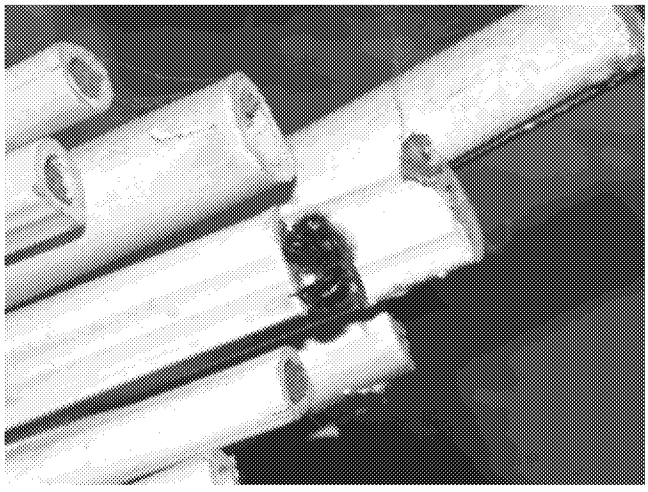

Plate 7.6 Mason bee, photo by Mace Vaughan (Xerces Society for Invertebrate Conservation).

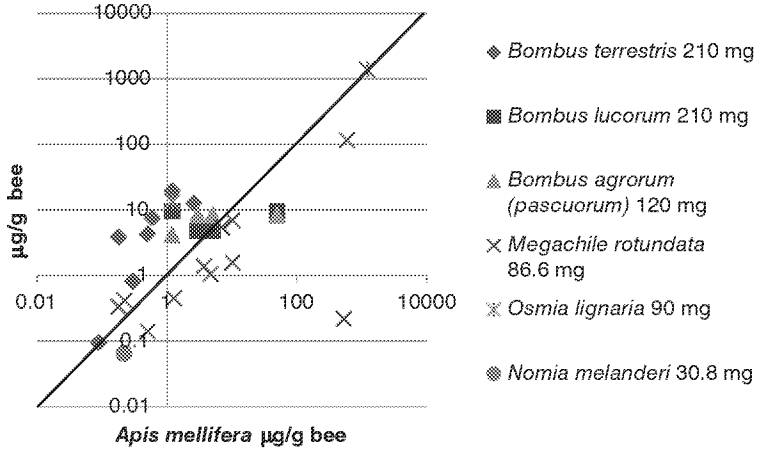

Plate 8.1 Comparison of the contact toxicity (LD50) of 21 pesticides to adults of *Apis mellifera*, three species of the social bee Bombus and three species of solitary bees (Osmia, Megachilidae, and Nomia). Points below the diagonal line indicate greater sensitivity than *Apis mellifera*, while points above the diagonal line represent lower sensitivity than *Apis mellifera* (Johansen et al., 1983).

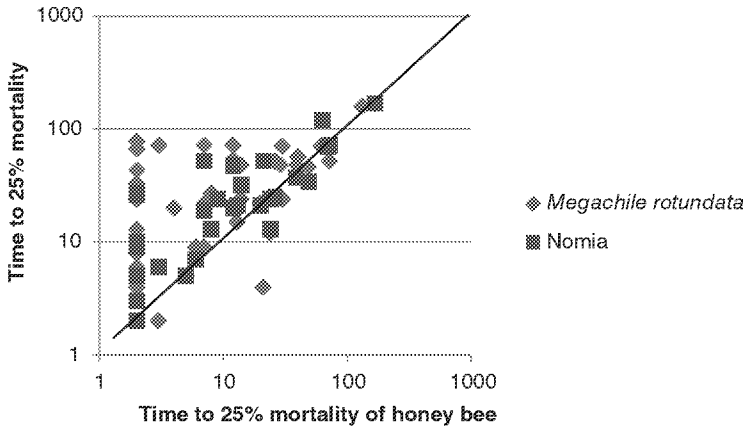

Plate 8.2 Comparison of the toxicity of pesticides to adults of *Apis mellifera* with the solitary bees *Megachile rotundata* and *Nomia melanderi* based on time for sprayed residues to decline to a concentration causing 25% or less mortality. Points below the diagonal line indicate greater sensitivity than *Apis mellifera*, while points above the diagonal line represent lower sensitivity than *A. mellifera* (Johansen et al., 1983).

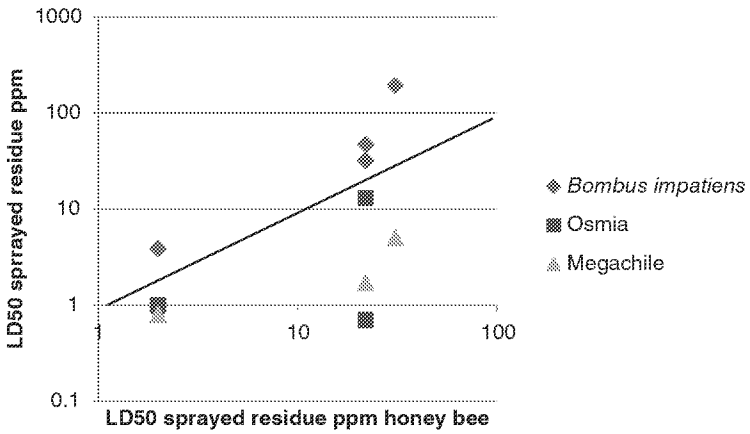

Plate 8.3 Comparison of the toxicity (LD50) of sprayed residues of clothianidin, imidacloprid, lambda-cyhalothrin and spinosad to adults of *Apis mellifera, Megachile rotundata*, and *Osmia lignaria* (Scott-Dupree, personal communication). Points below the diagonal line indicate greater sensitivity than *A. mellifera*, while points above the diagonal line represent lower sensitivity than *A. mellifera* (Johansen et al., 1983).

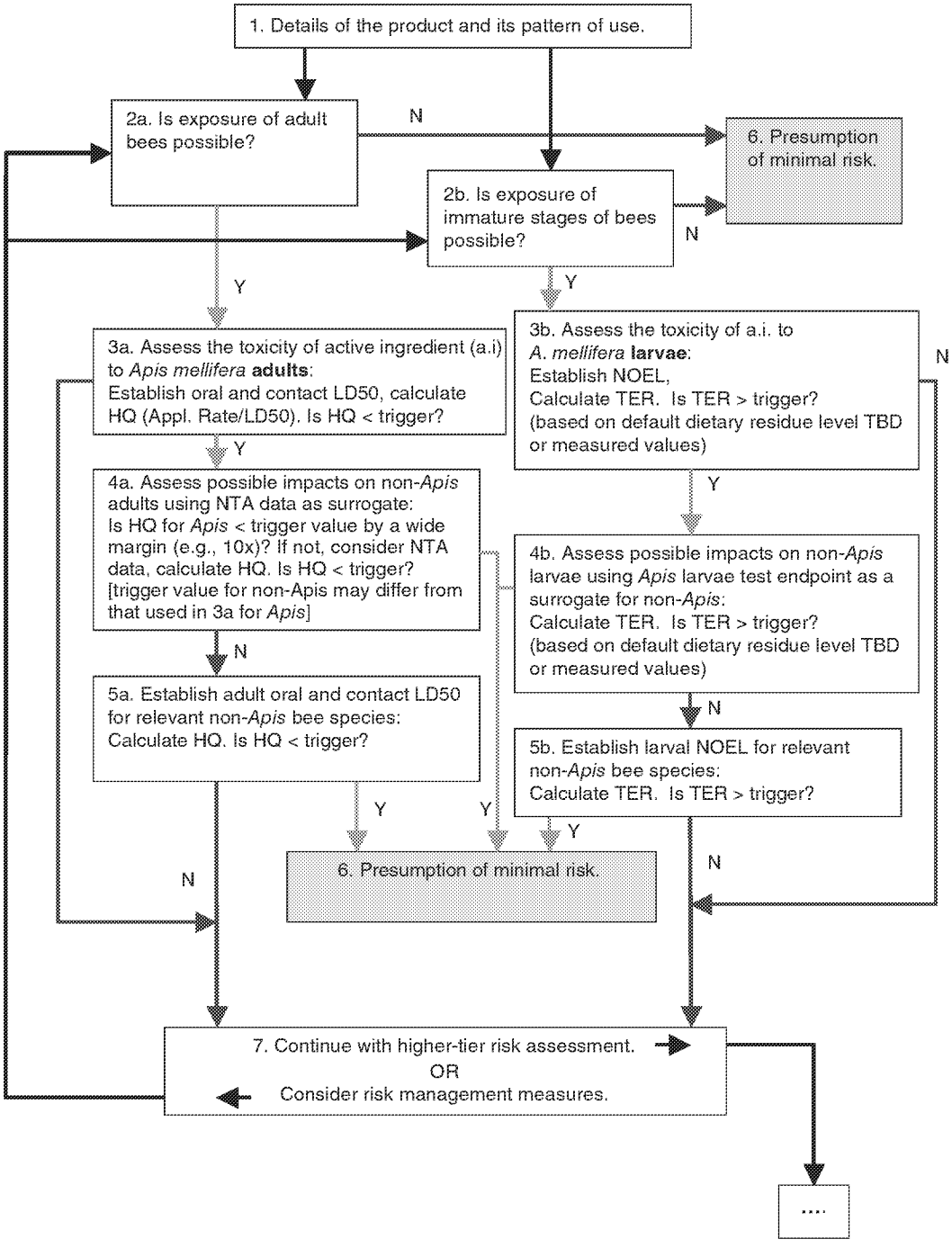

Plate 10.2 Insect pollinator screening-level risk assessment process for foliarly applied pesticides.

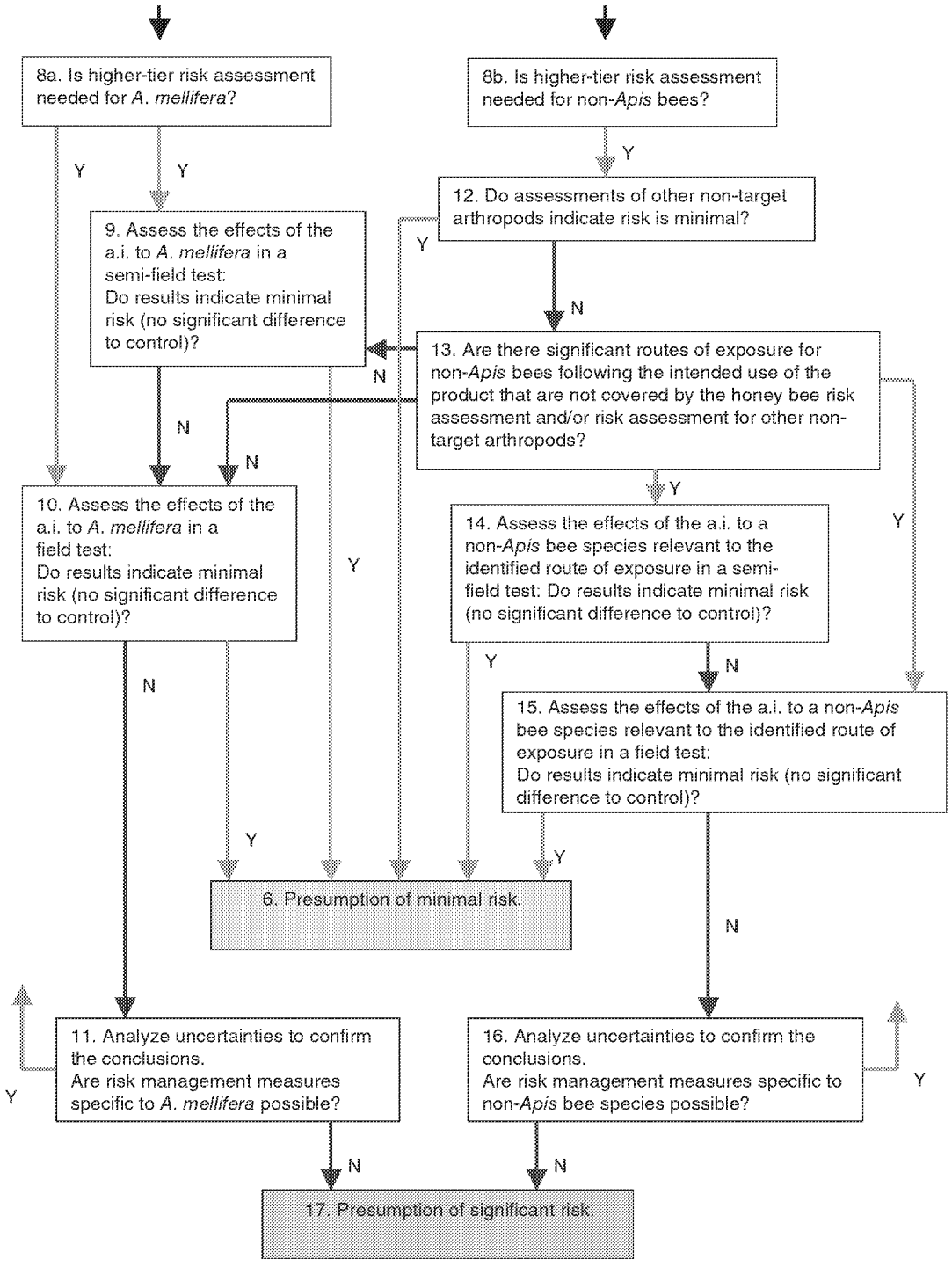

Plate 10.3 Higher tier (refined) risk assessment process for foliarly applied pesticides.

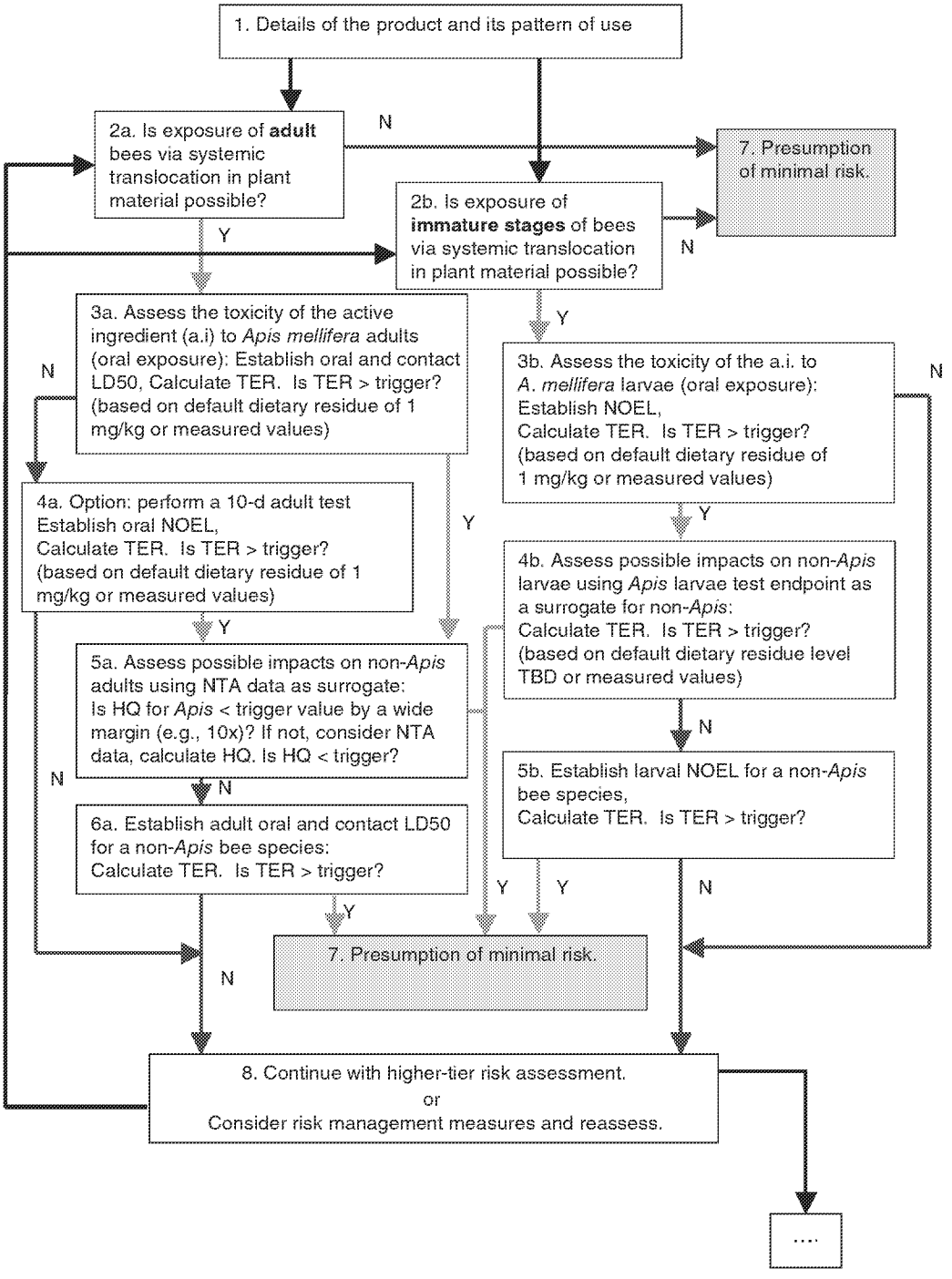

Plate 10.4 Insect pollinator screening-level risk assessment process for soil and seed treatment of systemic pesticides. Note that this flow chart may apply for trunk injection as well, as modalities of exposure of pollinators are similar as for soil/seed treatments. For trunk injection, however, further data are needed to appropriately describe the range of expected residue concentrations in nectar and pollen. As a consequence, no default value is currently available for a quantification of the risk (Boxes 3a and 3b). A compilation of available data could be made, with a particular attention to the corresponding injection protocols as it varies with the active substance involved and the tree.

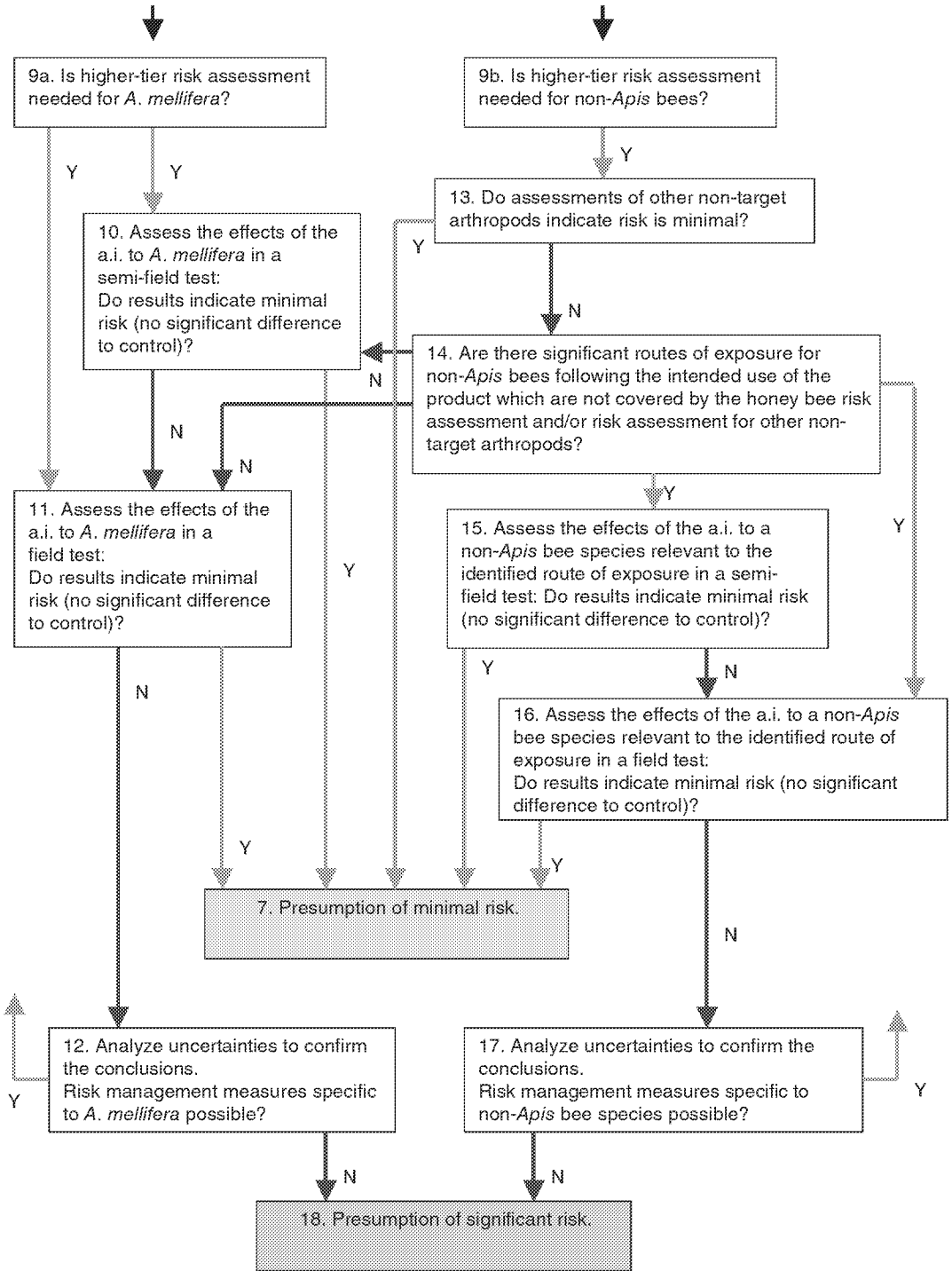

Plate 10.5 Higher tier (refined) risk assessment process for soil and seed treatment applied systemic pesticides.

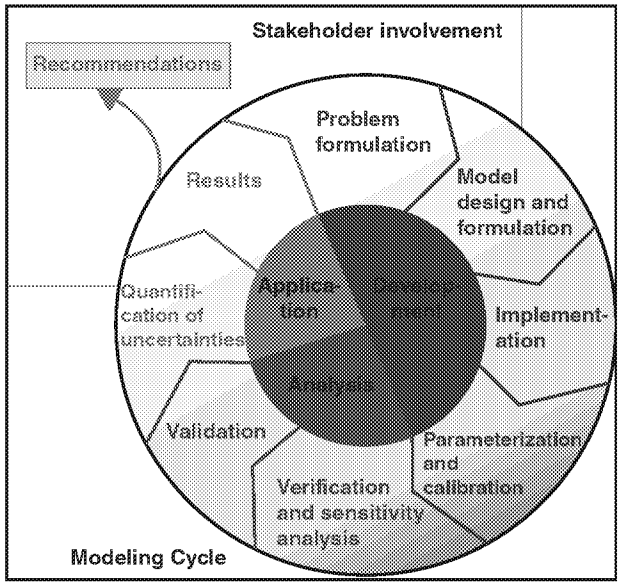

Plate 11.3 Tasks of the "Modeling Cycle," that is, of the iterative process of formulating, implementing, testing, and analyzing ecological models (after Schmolke et al., 2010b). Full cycles usually include a large number of subcycles, for example, verification leading to further effort for parameterization or reformulation of the model. The elements of this cycle are used to structure a new standard format for documenting model development, testing, analysis, and application for environmental decision making, TRACE (Schmolke et al., 2010b).

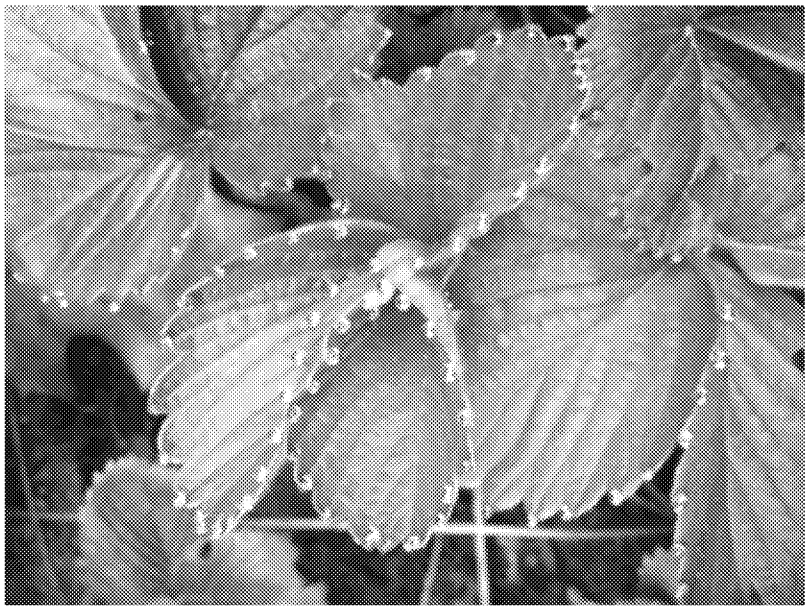

Plate 14.1 Guttation water on a strawberry leaf, photo by Mace Vaughan (Xerces Society for Invertebrate Conservation).